

## SEVEN BINOMIALS PROPOSED AS NOMINA AMBIGUA

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***Pinus maritima* Mill.** — The name *Pinus maritima* Mill. Gard. Dict. ed. 8, no. 7 (1768) has been applied to three different species. Most authors applied the name to the pine named later *P. Pinaster* Ait., although they did not always quote Miller as the author, but often other authors describing the same species as Miller. Some of these authors are: Du Roi, Harbk. Baumz. **2**: 42 (1772); Lamarck, Fl. Franç. **2**: 201 (1778); Gmelin, Syst. Nat. ed. 13, **2**: 1072 (1791), based on Duhamel, Arb. Arbust. **2**: t. 28, 29 (1755); Poiret in Lam. Enc. Méth. **5**: 337 (1804), based on Gmelin, l. c.; DC. & Lam., Fl. Franç. ed. 3, **3**: 275 (1805); Voss in Mitt. Deutsch. Dendr. Ges. **1907**: 91; Suringar in Mitt. Deutsch. Dendr. Ges. **1927**: 296; Fitschen in Beissn., Handb. Nadelh. ed. 3, p. 405 (1930); Hegi, Ill. Fl. Mittel-Eur. ed. 2, **1**: 138 (1935). The following authors have applied the name *P. maritima* to *P. halepensis* Mill.: Lambert, Descr. Gen. Pinus, t. 9, 10 (1803); Willd., Sp. Pl. **4**: 497 (1805), based on Lambert, l. c.; Aiton, Hort. Kew, ed. 3, **5**: 315 (1813). A few authors have used the *P. maritima* for *P. nigra* Arn. as: Koch, Syn. Fl. Germ. 667 (1837), K. Koch, Dendr. **2**<sup>2</sup>: 287 (1873), and Aschers. & Graebn., Syn. Mitteleur. Fl. ed. 2, **1**: 331 (1912) cite "*P. maritima* Mill.?" as a synonym of *P. nigra*, also Beissn., Handb. Nadelh. 238 (1891) cites *P. maritima* Ait. as a synonym of *P. nigra*. Schwarz (in Notizbl. Bot. Gart. Mus. Berlin, **18**: 226. 1936; **19**: 135. 1938) gives good reasons for the identity of *P. maritima* and *P. nigra* and transfers the varieties of *P. nigra* Arnold (*P. austriaca* Höss) to *P. maritima*. Almost all other authors from the second decade of last century to the beginning of the present century have cited *P. maritima* with various authors only as a synonym or do not mention it at all, as: Spreng. Syst. Veg. **3**: 886 (1826); Carrière, Traité Conif. 365 (1855); Beissn., l. c. (1891); Aschers. & Graebn., op. cit. **1**: 216 (1897); Rouy, Fl. France, **14**: 362 (1913). In view of the confusing use of the name *P. maritima*, it seems advisable to add this name to the list of *nomina ambigua rejicienda*, as already proposed by Aschers. & Graebn. op. cit. **1**: 216 (1897); ed. 2, **1**: 335 (1913) and Graebner in Mitt. Deutsch. Dendr. Ges. **1908**: 68.

A. R.

**Betula alba** L. — The name *Betula alba* L. was applied by Linnaeus (Spec. Pl. 982. 1753) to all the European species of *Betula* except *B. nana*. He was followed by most of the early botanists, also by some later authors as: Wahlenberg, Fl. Suec. 623 (1824–6), Fries, Fl. Scan. 145 (1835), Hooker, Brit. Fl. ed. 3, 1: 411 (1835), Spach in Ann. Sci. Nat. ser. 2, 15: 186 (1841), Benth., Handb. Brit. Fl. 2: 751 (1865), Regel in DC. Prodr. 16<sup>2</sup>: 162 (1868), Fiori & Paoletti, Fl. Anal. Ital. 1: 263 (1896–8). The first to distinguish two species was Roth, Tent. Fl. 1: 404 (1788) who distinguished *B. pendula* and reserved *B. alba* for the species later called *B. pubescens* Ehrh. With the same conception *B. alba* was used by K. Koch, Dendr. 2<sup>1</sup>: 649 (1872), Willkomm, Forstl. Fl. 302 (1887), Dippel, Handb. Laubh. 2: 172 (1892), Schneider, Ill. Handb. Laubh. 1: 116 (1904). The opposite view was taken by Borkhausen, Forstb. 1: 479 (1800), who applied the name *B. alba* to the species called *B. pendula* Roth (*B. verrucosa* Ehrh.); he was followed by Willd., Sp. Pl. 4: 462 (1805); Lam. & DC., Fl. Franç. ed. 3, 3: 301 (1805); Sprengel, Syst. Veg. 3: 854 (1820); Koch, Syn. Fl. Germ. 662 (1837); Hartman, Skand. Fl. ed. 5, 212 (1849); Ledeb., Fl. Ross. 3: 650 (1850), Marshall in Moss, Cambr. Brit. Fl. 2: 81 (1914). The majority of later botanists, however, followed Ehrhart, Beitr. 6: 98 (1791) and abandoned the name *B. alba* altogether, applying the name *B. verrucosa* or *B. pendula* to one of the species and *B. pubescens*, *B. odorata* Bechst. or *B. tomentosa* Reith. & Abel to the other, in some cases distinguishing more than one species. Some of these authors are: Fries, Summa Veg. Scand. 211, 212 (1846); Blytt, Norges Fl. 2: 400, 401 (1874); Hempel & Wilh., Bäume Sträuch. 2<sup>1</sup>: 18, 24 (1894); Hjelt, Consp. Fl. Fenn. 2: 1, 6 (1902); Winkler in Engl. & Prantl, Nat. Pflanzenfam. IV. 61: 75, 81 (1904); Hayek, Fl. Steyerm. 1: 104, 105 (1908); Hegi, Ill. Fl. Mittel-Eur. 3: 76, 78 (1909); Henry & Elwes, Trees Gr. Brit. Irel. 4: 962, 966 (1909); Rouy, Fl. France, 12: 254 (1910); Lindman, Svensk Fanerog. 201, 202 (1918); Gunnarson, Monog. Skand. Betul. 55, 63 (1925); Komarov, Fl. U. S. S. R. 5: 291, 295 (1936). In view of the fact that the name *B. alba* has been applied to two different species and that the overwhelming majority of recent authors has abandoned the name altogether as of dubious application, it seems advisable to place *B. alba* L. on the list of *nomina ambigua* and thus bring the procedure of these later authors in conformity with the Rules of Nomenclature.

A. R.

**Quercus rubra** Linnaeus. — This name was based by Linnaeus (Spec. Pl. 2: 996. 1753) on two different species. The first two syno-

nyms refer to the southern red oak or Spanish oak named by Michaux *Q. falcata*, while the two synonyms enumerated by Linnaeus under  $\beta$  are apparently referable to the northern red oak. Du Roi in 1771 (Obs. Bot. 35) applied *Q. rubra* L. to the northern red oak, a form of which was described as *Quercus ambigua* Michx. f., Hist. Arb. Am. 2: 120. (1812), not *Q. ambigua* Humb. & Bonpl. (1809) = *Q. borealis* Michx. f., N. Am. Sylv. 1: 98 (1819). All later authors followed Du Roi in applying *Q. rubra* L. to the northern red oak, until in 1915 C. S. Sargent (in Rhodora, 17: 39 and 18: 45) drew attention to the fact that the first two synonyms upon which Linnaeus' description was based, refer to *Q. falcata* Michx. Sargent therefore proposed to restore the name *Q. rubra* L. to the oak generally called *Q. falcata* Michx., and use the name *Q. borealis* Michx. for the common red oak. Unfortunately Michaux' name is based on the more northern form with smaller acorn and deeper cup, while the very widely distributed form with large acorn and shallow cup which represents the form generally understood under *Q. rubra*, will have to be distinguished as *Q. borealis* var. *maxima* (Marsh.) Ashe. For nearly 150 years the name *Q. rubra* has been applied universally to the red oak and is still used in this sense by many authors, while by others, as Sargent, Ashe, Rehder, it is used for the Spanish oak in accordance with its original application, thus causing great confusion in the name of this silviculturally and horticulturally important species widely distributed in its native country and extensively planted in Europe. The name *Q. rubra* should, therefore, be rejected as a *nomen ambiguum* and *Q. falcata* Michx. used for *Q. rubra* L. sensu stricto, while the name *Q. borealis* Michx. f. with its variety *Q. borealis* var. *maxima* (Marsh.) Ashe should be applied to *Q. rubra* Du Roi.

A. R.

**Quercus serrata** Thbg. — The name *Quercus serrata* Thbg., Fl. Jap. 176 (1784) has been applied by subsequent authors up to 1925 to two other species of eastern Asia; only *Q. serrata* Willd. Sp. Pl. 4<sup>1</sup>: 431 (1805) and Pers. Syn. Pl. 2: 568 (1807) are referable to the true *Q. serrata*, since they are based solely on Thunberg's description. *Quercus serrata* Thbg. was redescribed by Blume, in Mus. Bot. Lugd.-Bat. 1: 295 (1850) as *Q. glandulifera*, a name which has been used by all authors up to 1925 for this species. By Siebold & Zuccarini in Abh. Akad. Muench. 4<sup>3</sup>: 226 (1846) the name has been applied to an oak named later *Q. acutissima* by Carruthers in Jour. Linn. Soc. 6: 33 (1862). Following Siebold & Zuccarini the name *Q. serrata* was used for this oak by many authors as DC. Prodr. 16<sup>2</sup>: 50 (1864); Hook. f., Fl. Brit. Ind. 5: 601 (1888); Skan in Jour. Linn. Soc. 26: 520 (1899); Shirasawa,

Icon. Ess. For. Jap. **1**: t. 26, fig. 1-12 (1900); Komarov in Act. Hort. Petrop. **22**: 74 (Fl. Mansh. II) (1903); Schneider, Ill. Handb. Laubholz. **1**: 178 (1904); Nakai in Jour. Coll. Sci. Tokyo, **31**: 208 (Fl. Kor. II) (1911); Rehd. & Wils. in Sargent, Pl. Wils. **3**: 217 (1916); Nakai, Fl. Sylv. Kor. **3**: 22 (1917); Chun, Chinese Econ. Trees, 93 (1922). By Carruthers (l. c.) Thunberg's name was applied to the species described in 1850 as *Q. variabilis* Blume in Mus. Bot. Lugd.-Bat. **1**: 297. He was followed by Schottky in Bot. Jahrb. **47**: 638 (1912); Nakai in Mag. Bot. Tokyo, **29**: 57 (1915) and Fl. Sylv. Kor. **3**: 22 (1917); Koidzumi in Bot. Mag. Tokyo, **30**: 205 (1916). The identity of *Q. serrata* Thbg. with *Q. glandulifera* Bl. was not recognized until Koidzumi saw Thunberg's type in Upsala and published in 1925 a note in Bot. Mag. Tokyo, **39**: 313; his identification was accepted by Nakai, in Bot. Mag. Tokyo, **40**: 165 (1926). The writer when in Upsala in 1928 also examined Thunberg's types which consist of three specimens, branches with pistillate and staminate flowers and fruits, and can confirm Koidzumi's identification. In view of the fact that Thunberg's name had been applied until 1925 to two different species, and that the restoration of the name to another species universally known as *Q. glandulifera* Bl. would cause much confusion in the nomenclature of these widely distributed species, it seems advisable to place *Quercus serrata* on the list of *nomina ambigua* and use for the three species involved the names *Q. glandulifera* Bl. (*Q. serrata* Thbg.), *Q. acutissima* Carruthers and *Q. variabilis* Bl., as has already been done by A. Camus in her monograph "Les Chênes, atlas **1**: 45 (1934); **2**: 19, 20, 127 (1936); text **1**: 571, 572, 581 (1938).

A. R.

**Crataegus coccinea** L. — The name *Crataegus coccinea* was published by Linnaeus in the first edition of Species Plantarum, **1**: 476. 1753, with the following description and notes:

"CRATAEGUS foliis ovatis repando-angulatis, serratis glabris. Hort. cliff. 187. Hort. ups. 126. Gron. virg. 54. Roy. lugdb. 272.

Mespilus apii folio, virginiana spinis horrida, fructu amplo coccineo. Pluk. alm. 249. 249. t. 46. f. 4.

Mespilus spinosa f. Oxycantha virginiana maxima. Angl. hort. 49. t. 13. f. 1.

Habitat in Virginia, Canada.

Variat cum validis spinis lateralibus & absque spinis."

As pointed out by Sargent (in Bot. Gaz. **31**: 12. 1901; Rhodora, **11**: 182. 1909) and by W. W. Eggleston (in Rhodora, **10**: 76. 1908) the first two citations refer to two distinct plants probably belonging to different sections of the genus, neither of which can be identified with certainty;

and the Plukenet specimen preserved in the British Museum is so incomplete as to be unidentifiable; while the plant depicted in the plate in *Angl. Hort.* 49, t. 13, f. 1 is clearly *Crataegus Phaenopyrum* (L. f.) Medic. Since, according to Sargent, the only specimen named *Crataegus coccinea* by Linnaeus found in the Linnaean Herbarium is a plant from the Upsala Garden of the pubescent form of *Crataegus rotundifolia* Moench, a common species of northeastern North America, and since none of the other plants referred to in the description were identifiable, he suggested that this be taken as the type of the species; and for the glabrous form he proposed the new combination, *Crataegus coccinea* var. *rotundifolia* (Moench) Sarg.

In a further discussion of the subject in *Rhodora*, l. c., Sargent proposed that the name *Crataegus coccinea* L. should be discarded because of the fact that the description embraced elements altogether incoherent and was a source of permanent confusion and error, and that the name *Crataegus rotundifolia*<sup>1</sup> Moench should be held valid for the glabrous variety of that species, while for the pubescent variety represented in the Linnaean herbarium he proposed the name *Crataegus rotundifolia* var. *pubera*.

Descriptions of *Crataegus coccinea* in the earlier works in which it is mentioned are generally so brief and vague as to be of no value in differentiating it from other allied species, and the plates and figures published throw little additional light on it, as they obviously represent more than one species or in some cases imaginary composites of more than one species. The colored plate in Watson, *Dendr. Brit.* 1: t. 62 (1825), apparently represents a species of the Coccineae group, but it can scarcely be identified with any living plant. The plate in *Bot. Mag.* for 1835, t. 3432, may perhaps represent *Crataegus pedicellata* Sarg., or *C. pedicellata* var. *gloriosa*, but the description goes beyond the limits of that species. A figure of the leaves and fruit in Loudon, *Arb. et. Frut. Brit.* 2: f. 564 suggests *Crataegus intricata* J. Lange, but the description on p. 816, of the habit and fruit of the tree is not that of a species of the Intricatae group and is scarcely consistent with any known species.

The treatment in American manuals and floras is equally confused. The description in Torrey & Gray, *Fl. N. Am.* 1: 465 (1840) is evidently a composite one, as is further proved by the list of synonyms and citations appended. The description and illustration in Sargent, *Silva of N. Am.* 4: 95, t. 180 best represents *Crataegus pedicellata* or a closely related form as later understood by Sargent. In the first edition of

<sup>1</sup>Since *Crataegus rotundifolia* Moench is a later homonym of *C. rotundifolia* Lam., the name is illegitimate and cannot be maintained.

Gray's Manual, 128 (1848), the plant is described as smooth or downy, while in subsequent editions down to the fifth, 1867, it is said to be glabrous throughout. In the sixth edition, 1889, it is described as having the shoots villous-pubescent and the fruit subglobose or obovate  $\frac{1}{2}$ ' broad. In the seventh edition the genus *Crataegus* was treated by Mr. W. W. Eggleston, and he used the name *Crataegus coccinea* for a shrubby species of the Intricatae group, *C. modesta* Sarg., based upon its supposed identity with the plant from which the figure cited by Linnaeus, Pluk. Alm. 249, t. 46, f. 4. Sargent, however, in *Rhodora*, l. c., held that this interpretation was based upon a misunderstanding and that the Plukenet plant could not possibly have been *C. modesta*. Eggleston in subsequent publications (in Britton & Brown, Ill. Fl. ed. 2, 2: 317, f. 2396. 1913; Deam, Trees Indiana, 209, t. 96. 1921; House, Ferns Fl. Plants New York, 245 [N. Y. State Mus. Bull. 254] 1924) seems to have accepted Sargent's conclusion, and he definitely applied the name *C. coccinea* to *C. pedicellata* Sarg., giving a number of other species as synonyms.

In the first edition of Britton & Brown, Ill. Fl. 2: 242, f. 1998 (1897), the description and figure may well represent *Crataegus macrosperma* Ashe or some closely related species of the Tenuifoliae group.

The name *Crataegus coccinea* L. appears in nearly all of the local floras and plant lists of the northeastern United States, and many specimens are found in herbaria, but an examination of these shows the utter confusion that has arisen as to the identity of the species. A very large number of species, as distinguished by later authors, have been placed under this name and these include plants of obvious morphological and genetic differences belonging to almost every section of the genus having lobed or incised leaves.

In view of this situation and the apparent impossibility of determining the identity of the plant that should be taken as the Linnaean type of the species, it seems most desirable to abandon the name *Crataegus coccinea* L. altogether and to take up the next available names for the different plants that have been confused with it. *Crataegus pedicellata* Sarg. would thus become the valid name for the species rather widely distributed in northeastern North America that has perhaps most frequently been identified as *C. coccinea*, although there seems to be no positive evidence in the original description or citations for that interpretation. Probably a number of other species can properly be referred to this as synonyms or as varieties.

E. J. P.

***Crataegus tomentosa* L.** — The name *Crataegus tomentosa* was published by Linnaeus in Sp. Pl. ed. 1, 1: 476 (1753), with the following description:

"CRATAEGUS foliis cuneiformi-ovatis serratis subangulatis subtus villosis ramis spinosis.

*Mespilus inermis*, foliis ovato-oblongis serratis, subtus tomentosis. *Gron. virg.* 55.

*Habitat in Virginia.*"

The first paragraph does not seem to be consistent with the characters of the species that has generally been accepted as *Crataegus tomentosa* L., which is a small tree or arborescent shrub, widely distributed in the eastern and central parts of North America, with rather ample oblong-ovate leaves pubescent on the under surface, and with unarmed or sparingly armed branches. The last paragraph, so far as it goes, might very well apply to this species, but a serious doubt arises as to this from the fact that the species in question is not known in the Chesapeake Bay region, from which presumably Clayton's plant came, and unfortunately the specimen has not been found, so it seems impossible to resolve the doubt.

W. W. Eggleston pointed out these inconsistencies (in *Rhodora*, **10**: 78. 1908) and he held that the name *Crataegus tomentosa* should properly be applied to *Crataegus uniflora* Muench. In support of this view he cited the fact that in *Sp. Pl.* ed. 2, **1**: 682 (1762) Linnaeus adds: "*Mespilus virginiana grossulariae foliis Pluk. phyt.* 100. f. 1;" and that Plukenet says of this in his *Alm.* 249 (1696): "*Mespilus virginiana grossulariae foliis, fructu rubro minore. Phytogr. Tab.* 100. f. 1. an *Oxyacanthus folio parvo subrotundo, flore unico, theca foliacea incluso summitatibus ramulorum insidente Banisteri.*"

There can be little doubt that the last quotation refers to *Crataegus uniflora* Muench., but the evidence does not seem convincing that this is the plant which Linnaeus intended to describe as *Crataegus tomentosa*, since no specimen of this well-marked species is known that was so named by him. Eggleston seems to have accepted this view in his later publications (in *Britton & Brown, Ill. Fl.* ed. 2, **2**: 320, f. 2405 (1913); in *House, Ferns and Flow. Pl. New York*, 418 [N. Y. State Mus. Bull. **254**] 1924), as he restored the name *Crataegus uniflora* Muench. to the shrubby species with usually single or rarely two or three flowers, and took up the name *Crataegus Calpodendron* (Ehrh.) Medic., *Gesch. Bot.* 83 (1793), for the species usually accepted as *C. tomentosa*.

According to Sargent (in *Rhodora*, **11**: 182. 1909), who examined the sheet in the Linnaean herbarium labeled *Crataegus tomentosa*, this consists of two specimens collected by Kalm, without locality, one of which is *C. tomentosa* as usually understood, and the other some thick-leaved species of the *Tomentosae* group.

No such confusion has arisen in the use of the name *Crataegus*

*tomentosa* as is the case with *Crataegus coccinea*, and the former name has long and consistently been applied to a single species by authors and competent collectors. For this reason Sargent maintained that there was no good reason for abandoning the name.

However, since in the absence of a type specimen it seems impossible to determine the identity of the plant to which the name *Crataegus tomentosa* should properly be restricted, and since upon the face of the evidence it seems extremely doubtful that either of the citations in the original description referred to the plant that has so long passed as this species, it seems best that the name should be abandoned and that the next available name, which in this case is clearly *Crataegus Calpodendron* (Ehrh.) Medic., should be used for this plant.

E. J. P.

**Tilia alba** Ait. — The original publication (Hort. Kew. 2: 230. 1789) states "Native of North America. Cult. 1767 by Mr. James Gordon. Flowers unknown." Henry (in Elwes & Henry, Trees Gt. Brit. Irel. 7: 1675. 1913) affirms that the type in the British Museum, inscribed *T. alba* in Solander's own handwriting, though bearing neither flower nor fruit, is without doubt a branch of the common European lime, identical with *T. tomentosa* var. *argentea* Henry. Henry's understanding of the specimen that represents the "type" of *T. alba* may or may not be correct. Circumstantial evidence indicates that Gordon, a well known gardener at Mile End, probably cultivated an American "silvery" linden. Gordon was well known (cf. Loudon, Arb. Frut. Brit. 1: 77. 1854), Ellis writing about him to Linnaeus in flattering terms. The great majority of the species credited as importations of Gordon (cf. Loudon, op. cit. 82; Aiton, Hort. Kew.) are American, with few from the Eastern Mediterranean (e. g. *Salvia cretica*) or from the Atlantic Islands (*Ilex Perado*). It is very unlikely that in 1767 Gordon had material introduced from Hungary or the Balkans. The question is thus raised whether the "type" mentioned by Henry truly represents Gordon's linden. In my opinion there is hardly a chance that it does. Koch (Dendr. 1: 478. 1869) is justified in stating that the silvery linden originally known in England is the American one, and he rationally accounts for the appearance of *T. tomentosa* in Cassel mentioning the trade that connected southern Germany with Hungary at the time of Moench.

The use of Aiton's binomial has seldom been legitimately restricted to a North American linden. Wangenheim (Beytr. Forstwiss. 3: 55. 1787) and the editor of Du Roi's second edition (Harbk. Baumz. 3: 115. 1800) had knowledge of an American "silvery" linden, and the use of *T. alba* made in Du Roi's work, is correct in my opinion, with the excep-



tion of *T. tomentosa* being accepted therein as a synonym of *T. alba*. The great majority of botanists, however, have confused *T. alba* Ait. with *T. alba* Waldst. & Kit. = *T. tomentosa* Moench. The second edition of the Hortus Kewensis subscribes to this confusion; it adopts the understanding of *Tilia alba* as of Willdenow (Sp. Pl. 2: 1162. 1799), Martyn (in Miller's Dict., 1803), Borkhausen (Handb. Forstbot. 2: 1223. 1803), Desfontaines (Hist. Arb. Arbriss. France, 2: 42. 1809), Ventenat (Monog. Gen. Tilleul, 12. 1802). Steven (in Bull. Soc. Nat. Mosc. 4: 262. 1832) appears to have been aware that *T. alba* Waldst. & Kit. and *T. alba* Ait. are different species. Michaux reinstated *T. alba* (Hist. Arb. Am. Sept. 3, 1813), reducing *T. heterophylla* Vent. to synonymy, for which he was censored by Nuttall (N. Am. Sylva, 1: 91. 1842).

A critical revision of the literature establishes: a) *T. alba* Ait. is an American linden; b) *T. alba* Waldst. & Kit. is an Hungarian linden; c) the type, technically speaking, is a sterile branch that may or may not represent *T. tomentosa* of our understanding; if it is this species, which Henry claims, there is contradiction between the letter of the publication and the geographic origin of the type; d) *T. alba* under various authorships, and with much attending confusion of synonymy has been used by Willdenow, Borkhausen, Martyn, Desfontaines, Ventenat, Nuttall, etc. for the European *T. tomentosa*; e) *T. alba* has been understood as an American linden by the editor of Du Roi, Michaux the elder, Steven, K. Koch.

In consideration of the uncertainty attaching to the type and of the indifferent use of the binomial, it seems best to reject altogether *T. alba* Ait. accepting in its stead: *T. tomentosa* Moench, *T. heterophylla* Vent., and *T. neglecta* Spach which can be attributed to species of reliable typification, and are well established in taxonomic and horticultural usage.

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